



COVID-19 Guide

Adjustments to Transplant Program and OPO Evaluation Metrics

The Scientific Registry of Transplant Recipients (SRTR), under contract from the Health Resources and Services Administration (HRSA), is charged with evaluating the performance of the nation's transplant system through publication of semi-annual transplant program-specific reports (PSRs) and organ procurement organization (OPO)-specific reports (OSRs). These reports contain performance metrics covering various time periods. For OPOs, these metrics include eligible death conversion rates and deceased donor organ yield. For transplant programs, they include pre-transplant mortality rates (formerly called waitlist mortality rates), transplant rates, organ offer acceptance rates, patient mortality after listing, and 1-month, 1-year, and 3-year posttransplant outcomes including graft survival and patient survival.

In response to the current global pandemic, SRTR modified the evaluation metrics for transplant programs and OPOs for the reports released in January 2021. The reports released in January 2021 made adjustments to transplant program and OPO performance metrics so that data beyond the declaration of a national public health emergency on March 13, 2020, were not included in the metrics.

The SRTR Review Committee (SRC) reviewed the metrics at its meetings on January 20, 2021, and February 9, 2021, with the goal of determining whether continued adjustments are necessary, or if the SRTR should resume regular reporting of transplant program and OPO performance metrics. The committee reviewed data on how the pandemic has affected the nation's transplant system, and the extent to which the effects varied geographically and temporally. The committee made the following recommendations to SRTR. These recommendations were reviewed by the Health Resources and Services Administration's (HRSA's) Division of Transplantation, which oversees the SRTR. HRSA approved of these recommendations which the SRTR will implement for the July 2021 reporting cycle:

Posttransplant Outcomes (including 1-month, 1-year, and 3-year graft and patient survival):
Evaluations cohorts will continue to exclude transplants and follow-up time beyond March 12, 2020.

1-month & 1-year Patient and Graft Survival Evaluations: Transplants 1/1/2018-3/12/2020;
follow-up through 3/12/2020.

3-year Patient and Graft Survival Evaluations: Transplants 1/1/2015-12/31/2017; follow-up
through 3/12/2020.

Pre-Transplant Mortality Rate (formerly called Waitlist Mortality Rate): Evaluation cohorts will be
modified on an organ-specific basis:

Kidney and Lung: Candidates on the waitlist 1/1/2019-3/12/2020.

Liver, Heart, Pancreas, and Intestine: Candidates on the waitlist 1/1/2019-12/31/2020.

Transplant Rate: The first quarter following declaration of a national emergency will be excluded
from the transplant rate evaluations for all organ types.

Candidates on the waitlist 1/1/2019-3/12/2020 and 6/13/2020-12/31/2020.



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Overall Rate of Mortality After Listing: Patient follow-up will continue to be truncated on 3/12/2020:

Evaluation period: 1/1/2019-3/12/2020.

Offer Acceptance Rate: These evaluations will return to normal reporting cohorts.

Offers received 1/1/2020-12/31/2020.

These decisions will apply to the evaluations released in the SRTR's semi-annual program-specific reports scheduled for release on July 6, 2021. These changes have been communicated to the leadership of the Organ Procurement and Transplantation Network's Membership and Professional Standards Committee (MSPC). These decisions will then be re-evaluated as more information becomes available in preparation for the release scheduled for January 2022.

As with the January 2021 reports, SRTR will continue to report descriptive data beyond March 12, 2020, e.g., waitlist counts, transplant counts, recipient characteristics, donor counts, donor characteristics, etc., but will alter data for performance evaluation metrics as described above.



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This report contains a wide range of useful information about the heart transplant program at The Cleveland Clinic Foundation (OHCC). The report has three main sections:

- A. Program Summary
- B. Waiting List Information
- C. Transplant Information

The Program Summary is a one-page summary highlighting characteristics of the program, including the number of candidates on the waiting list, the number of transplants performed at the program, the number of patients being cared for by the program, and patient outcomes, including outcomes while on the waiting list (the transplant rate and the death rate while on the waiting list) and outcomes after transplant (patient and graft survival probabilities). If the program performed transplants in both adults and children, survival probabilities for adults and children (pediatrics) are provided separately. For each of the outcomes measures presented, a comparison is provided showing what would be expected at this program if it were performing as similar programs around the country perform when treating similar patients. More details regarding these outcome measures are provided in Sections B and C of the report.

The Waiting List Information section contains more detailed information on how many candidates are on the waiting list at the program, the types of candidates on the waiting list, how long candidates typically have to wait for a transplant at this program, how frequently candidates successfully receive a transplant, and how often candidates on the waiting list die before receiving a transplant.

Table B1 shows the activity on this program's waiting list during two recent 1-year periods and provides comparisons to all programs within this program's OPTN region (see <http://optn.transplant.hrsa.gov/members/regions.asp> for information on OPTN regions) and the nation as a whole. Tables B2 and B3 describe the candidates on the waiting list at this program, with comparisons to candidates waiting in the same donor service area (OPO/DSA) the OPTN region, and the nation as a whole.

Table B4 shows how many candidates were removed from the waiting list because they received a transplant. The program's transplant rate is calculated as the number of candidates who received a transplant divided by the person-years observed at the program (person-years is a combination of how many candidates were on the waiting list along with how long each candidate was followed since some candidates are not on the waiting list for the entire year). The transplant rate and comparisons to what would be expected at this program are presented in Figures B1 and B2. Figure B1 shows the transplant rate compared to what was expected at this program. The expected transplant rate is an estimate of what we would expect at this program if it were performing transplants at rates similar to other programs in the US with similar candidates on their waiting lists. The expected rate is only an estimate, and is made with a certain level of uncertainty. This uncertainty is shown in Figure B2. Figure B2 displays the ratio of the observed to the expected transplant rate. A ratio of 1 indicates that the observed transplant rate was equal to the expected transplant rate, while a ratio less than 1 indicates the observed rate was lower than expected rate and a ratio greater than 1 indicates the observed rate was higher than the expected rate. However, the level of uncertainty must be considered when interpreting these numbers. The 95% interval is also shown on Figure B2. This interval provides a range within which the true ratio of observed to expected transplant rates is likely to be. If this



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confidence interval includes (crosses) 1.0, then we cannot say that this program's observed transplant rate is different from what would be expected. The observed deceased donor transplant rate at this program was 51.2 per 100 person-years. Transplant rates are also provided for adult and pediatric patients separately along with comparisons to adult and pediatric rates in the DSA, the OPTN region, and the nation. Please refer to the PSR Technical Methods documentation available at <http://www.srtr.org> for more detail regarding how expected rates are calculated.

The pre-transplant mortality rate (previously called the waiting list mortality rate) for candidates on the waiting list is presented in Table B5 and Figures B4-B6. These data are presented in the same way as the transplant rate data in the previous section. The intent of this table and figures is to describe risk of death once candidates are listed rather than while they are listed, but before they are transplanted. Therefore, time at risk and deaths after removal from the waiting list for reasons other than transplant, transfer to another transplant program, or recovery (no longer needing a transplant), and before any subsequent transplant, are included. As with transplant rates, mortality rates should be interpreted carefully taking into consideration the interval displayed in Figure B5. For a complete description of how observed and expected mortality rates are calculated, please refer to the technical documentation available at <http://www.srtr.org>.

Survival from listing is presented in Table B6 and Figures B7-B9. These data are presented in the same way as the pre-transplant mortality rate data in the previous section. The intent of this table and figures is to describe risk of death once candidates are listed rather than while they are listed, including after a transplant. As with transplant rates, mortality rates should be interpreted carefully taking into consideration the interval displayed in Figure B8. For a complete description of how observed and expected mortality rates are calculated, please refer to the technical documentation available at <http://www.srtr.org>.

Table B7 presents information on what happens to candidates on the waiting list by three different time points after listing: 6 months, 12 months, and 18 months. The table displays percentages of candidates who have died, been removed from the waiting list, been transplanted, or been transferred or lost-to-follow-up. Tables B8 and B9 provide more detail regarding how many candidates have received a deceased donor transplant by certain time points during the first 3 years after being put on the transplant waiting list. Each row of Tables B8 and B9 presents the percent of candidates who received a deceased donor transplant by each time point. Table B10 presents data on the time it took for different percentages of patients to be transplanted for candidates added to the list between 01/01/2015 and 06/30/2020. The time it took for 5% (the 5th percentile) of patients to receive a transplant at this program was 0.2 months. If "Not Observed" is displayed in the table, then too few candidates received transplants before 12/31/2020 to calculate a particular percentile of transplant times.

Table B11 contains a summary of the offer acceptance practices of the program. The offer acceptance ratio indicates whether the program is more or less likely to accept offers than the average program. If the offer acceptance ratio is greater than 1.0, then the program tends to accept more offers than average; if the offer acceptance ratio is less than 1.0, then the program tends to accept fewer offers than average. Figure B10 shows the distribution of program offer acceptance rates as well as the offer acceptance rate for this program. Figures B11 - B15 similarly show offer acceptance rates for subsets of offers.



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The Transplant Information section begins with descriptions of transplant recipients in Tables C1 and C2. Data on recipients of deceased donor transplants are presented (Tables C1D and C2D); if applicable, data on recipients of living donor transplants are presented separately (Tables C1L and C2L). Comparisons to the region and the nation as a whole are provided. A description of the deceased donors used at this program is provided in Table C3D, along with characteristics of living donors in Table C3L, if applicable. Finally, information on the transplant procedure for deceased and living donor transplants is presented in Tables C4D and C4L, respectively.

Starting with Table C5, transplant outcomes are presented along with comparisons to what would be expected at this program and what happened in the nation as a whole. Tables C5-C10 present information on graft survival (survival of the transplanted organ), with data presented separately for adult and pediatric recipients. Patients are followed from the time of transplant until either failure of the transplanted organ or death, whichever comes first. Please refer to the technical methods for more information on these calculations (<http://www.srtr.org>).

While Tables C5-C10 present data on graft survival, Tables C11-C16 present information on patient survival. For these tables, patients are followed from the time of transplant until death, regardless of whether the transplant is functioning or the patient required another transplant to survive.

Tables C17 and C18 summarize the multiorgan transplant outcomes at this program. The summary statistics in these tables are descriptive and are not risk-adjusted for different donor and candidate characteristics.

Additional information regarding the technical methods and the risk adjustment models used to estimate expected event rates is available on the SRTR website at <http://www.srtr.org>. We welcome and encourage feedback on these reports. Please feel free to share feedback with the SRTR at the following e-mail: srtr@srtr.org.



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A. Program Summary

Figure A1. Waiting list and transplant activity

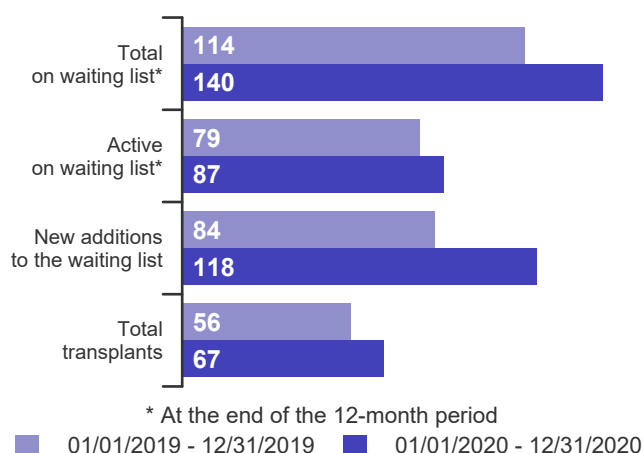


Table A1. Census of transplant recipients

Recipients	01/01/2019-12/31/2019	01/01/2020-12/31/2020
Transplanted at this center	56	67
Followed by this center*	709	751
...transplanted at this program	669	700
...transplanted elsewhere	40	51

* Recipients followed are transplant recipients for whom the center has submitted a post-transplant follow-up form for a transplant that took place before the 12-month interval for each column.

Figure A2. Transplant rates
01/01/2019 - 03/12/2020, 06/13/2020 - 12/31/2020

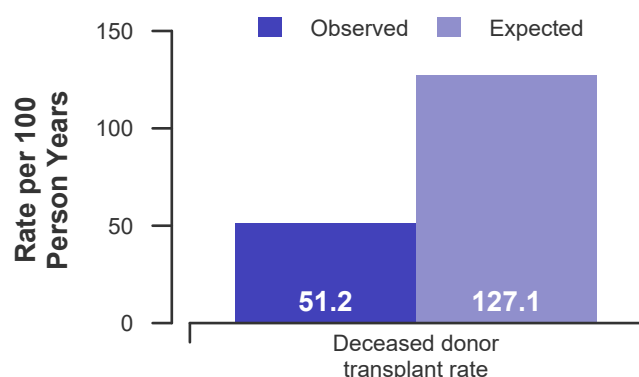


Figure A3. Pre-transplant mortality rates
01/01/2019 - 12/31/2020

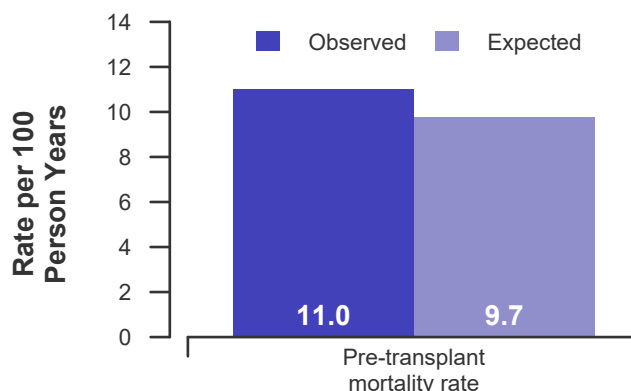


Figure A4. First-year adult graft and patient survival: 01/01/2018 - 03/12/2020

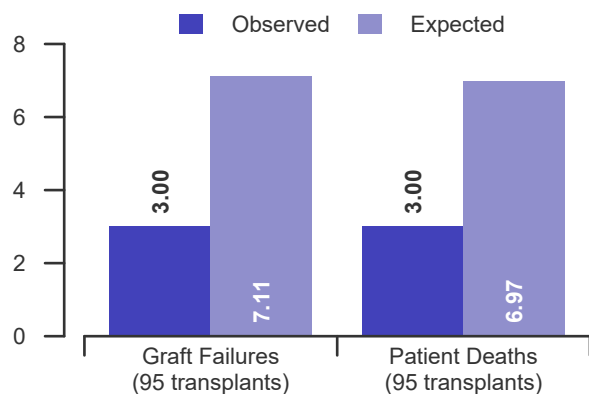
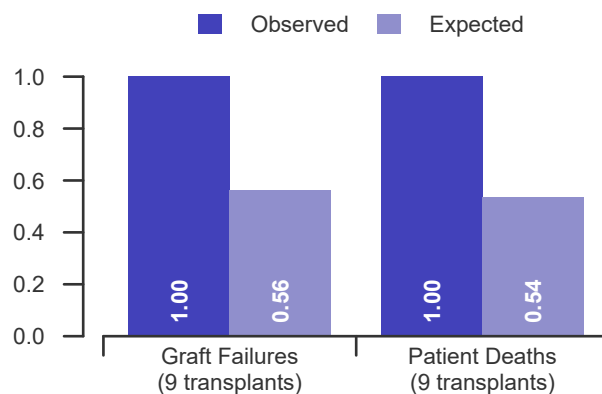


Figure A5. First-year pediatric graft and patient survival: 01/01/2018 - 03/12/2020





B. Waiting List Information

Table B1. Waiting list activity summary: 01/01/2019 - 12/31/2020

Waiting List Registrations	Counts for this center		Activity for 01/01/2020 to 12/31/2020 as percent of registrants on waiting list on 01/01/2020		
	01/01/2019-12/31/2019	01/01/2020-12/31/2020	This Center (%)	OPTN Region (%)	U.S. (%)
On waiting list at start	118	114	100.0	100.0	100.0
Additions					
New listings at this center	84	118	103.5	110.3	122.1
Removals					
Transferred to another center	1	1	0.9	1.7	2.4
Received living donor transplant*	0	0	0.0	0.0	0.0
Received deceased donor transplant*	56	67	58.8	79.8	97.2
Died	8	4	3.5	4.2	6.4
Transplanted at another center	2	2	1.8	0.7	1.1
Deteriorated	6	12	10.5	8.4	7.2
Recovered	5	0	0.0	2.2	5.0
Other reasons	10	6	5.3	9.1	8.3
On waiting list at end of period	114	140	122.8	104.2	94.5

* These patients were removed from waiting list with removal code indicating transplant; this may not equal the number of transplants performed at this center during the specified period.



B. Waiting List Information

Table B2. Demographic characteristics of waiting list candidates**Candidates registered on the waiting list between 01/01/2020 and 12/31/2020**

Demographic Characteristic	New Waiting List Registrations 01/01/2020 to 12/31/2020 (%)			All Waiting List Registrations on 12/31/2020 (%)		
	This Center (N=118)	OPTN Region (N=448)	U.S. (N=4,594)	This Center (N=140)	OPTN Region (N=423)	U.S. (N=3,555)
All (%)	100.0	100.0	100.0	100.0	100.0	100.0
Ethnicity/Race (%)*						
White	79.7	71.7	58.1	72.1	72.8	58.0
African-American	17.8	24.3	26.0	23.6	23.4	28.3
Hispanic/Latino	1.7	2.2	10.6	2.9	1.9	10.1
Asian	0.8	1.1	4.1	1.4	1.4	2.6
Other	0.0	0.7	1.2	0.0	0.5	1.0
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Age (%)						
<2 years	4.2	6.5	6.2	2.1	4.3	4.8
2-11 years	2.5	3.8	4.3	1.4	2.1	4.4
12-17 years	0.8	5.6	4.0	0.0	2.8	3.2
18-34 years	11.0	11.8	8.9	7.9	12.3	11.1
35-49 years	11.9	15.8	18.4	16.4	19.1	22.3
50-64 years	50.0	40.4	41.3	51.4	45.4	43.4
65-69 years	15.3	13.2	14.1	17.9	12.3	9.7
70+ years	4.2	2.9	2.9	2.9	1.7	1.1
Gender (%)						
Male	73.7	73.9	71.4	77.9	82.3	75.4
Female	26.3	26.1	28.6	22.1	17.7	24.6

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



B. Waiting List Information

Table B3. Medical characteristics of waiting list candidates

Candidates registered on the waiting list between 01/01/2020 and 12/31/2020

Medical Characteristic	New Waiting List Registrations 01/01/2020 to 12/31/2020 (%)			All Waiting List Registrations on 12/31/2020 (%)		
	This Center (N=118)	OPTN Region (N=448)	U.S. (N=4,594)	This Center (N=140)	OPTN Region (N=423)	U.S. (N=3,555)
All (%)	100.0	100.0	100.0	100.0	100.0	100.0
Blood Type (%)						
O	46.6	43.1	44.4	58.6	61.0	60.8
A	36.4	40.2	36.4	28.6	28.6	27.5
B	12.7	11.8	14.4	12.1	9.7	10.0
AB	4.2	4.9	4.7	0.7	0.7	1.7
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Previous Transplant (%)						
Yes	4.2	3.3	3.8	3.6	3.1	3.4
No	95.8	96.7	96.2	96.4	96.9	96.6
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Primary Disease (%)						
Cardiomyopathy	59.3	56.9	58.9	57.1	56.0	56.2
Coronary Artery Disease	27.1	23.9	23.9	36.4	29.1	26.2
Retransplant/Graft Failure	3.4	2.5	3.2	2.9	2.8	2.7
Valvular Heart Disease	0.8	0.2	1.0	0.0	0.2	0.8
Congenital Heart Disease	9.3	14.1	10.9	3.6	9.9	11.8
Other	0.0	2.5	2.2	0.0	1.9	2.3
Missing	0.0	0.0	0.0	0.0	0.0	0.0
Medical Urgency Status at Listing (%)						
Status 1A	5.1	9.2	8.8	2.9	6.9	6.8
Status 1B	2.5	3.3	3.1	12.1	13.5	14.0
Status 2	0.0	2.7	2.2	16.4	12.3	16.5
Adult Status 1	5.1	3.8	4.2	0.0	0.0	0.1
Adult Status 2	24.6	19.0	19.7	4.3	2.8	2.8
Adult Status 3	3.4	8.3	9.7	1.4	3.5	4.2
Adult Status 4	28.8	31.7	30.4	27.1	37.1	31.2
Adult Status 5	7.6	3.1	2.9	7.9	3.8	3.2
Adult Status 6	19.5	15.0	17.1	19.3	13.5	18.5
Temporarily Inactive	3.4	4.0	2.0	8.6	6.6	2.8



B. Waiting List Information

Table B4D. Deceased donor transplant rates: 01/01/2019 - 03/12/2020, 06/13/2020 - 12/31/2020

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	118	138	392	3,822
Person Years**	210.9	239.5	706.7	6,479.9
Removals for Transplant	108	140	558	6,370
Adult (18+) Candidates				
Count on waiting list at start*	115	135	366	3,431
Person Years**	204.7	233.3	646.4	5,754.2
Removals for transplant	98	130	468	5,481
Pediatric (<18) Candidates				
Count on waiting list at start*	3	3	26	391
Person Years**	6.2	6.2	60.3	725.7
Removals for transplant	10	10	90	889

* Counts in this table may be lower than similar counts in other waiting list tables, such as Table B1. A small percentage (~1%) of patients are found to have died or been transplanted before being removed from the waiting list, so these patients are excluded if the event occurs prior to the start of the study period. Inactive time on the waiting list is included in the calculations for this table.

** Person years are calculated as days (converted to fractional years). The number of days from January 1 or from the date of first wait listing until death, transplant, removal from the waiting list or December 31.

Figure B1D. Observed and expected deceased donor transplant rates: 01/01/2019 - 03/12/2020, 06/13/2020 - 12/31/2020

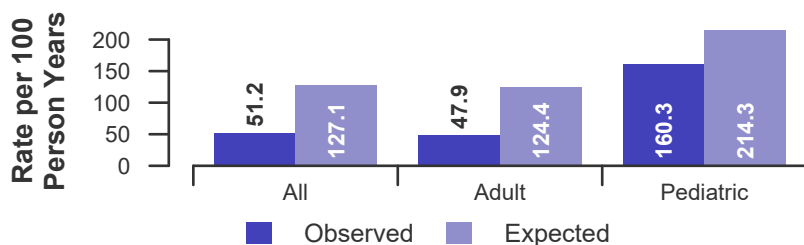


Figure B2D. Deceased donor transplant rate ratio estimate

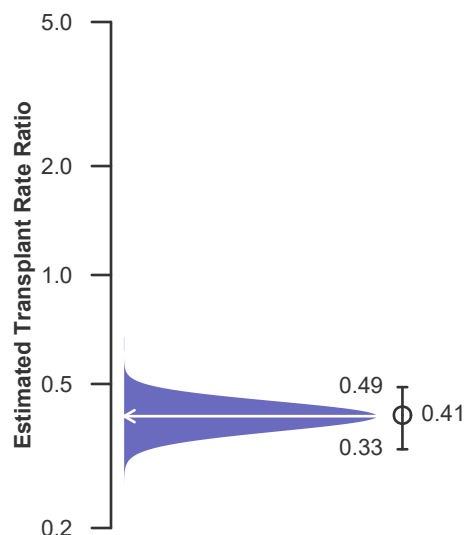
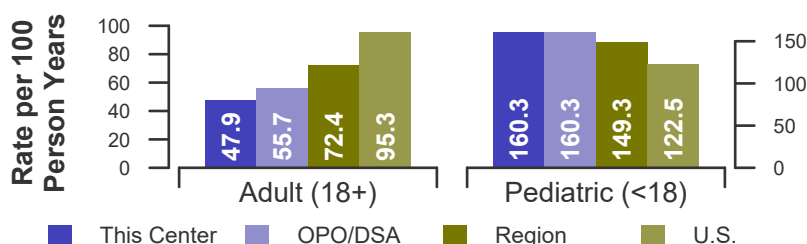


Figure B3D. Observed adult (18+) and pediatric (<18) deceased donor transplant rates: 01/01/2019 - 03/12/2020, 06/13/2020 - 12/31/2020





B. Waiting List Information

Table B5. Pre-transplant mortality rates: 01/01/2019 - 12/31/2020

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	118	138	392	3,822
Person Years**	263.8	308.9	917.0	8,480.4
Number of deaths	29	33	76	765
Adult (18+) Candidates				
Count on waiting list at start*	115	135	366	3,431
Person Years**	256.5	301.6	840.1	7,551.1
Number of deaths	29	33	66	645
Pediatric (<18) Candidates				
Count on waiting list at start*	3	3	26	391
Person Years**	7.3	7.3	76.9	929.3
Number of deaths	0	0	10	120

* Counts in this table may be lower than similar counts in other waiting list tables, such as Table B1. A small percentage (~1%) of patients are found to have died or been transplanted before being removed from the waiting list, so these patients are excluded if the event occurs prior to the start of the study period. Inactive time on the waiting list is included in the calculations for this table.

** Person years are calculated as days (converted to fractional years). The number of days from January 1 or from the date of first wait listing until death, transplant, 60 days after recovery, transfer or December 31.

Figure B4. Observed and expected pre-transplant mortality rates: 01/01/2019 - 12/31/2020

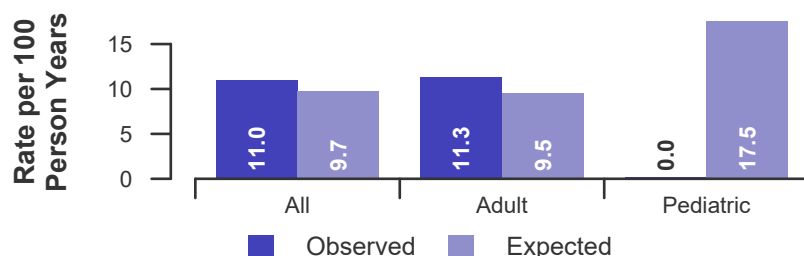


Figure B6. Observed adult (18+) and pediatric (<18) pre-transplant mortality rates: 01/01/2019 - 12/31/2020

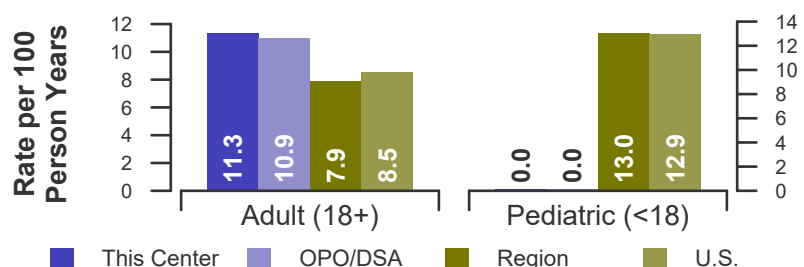
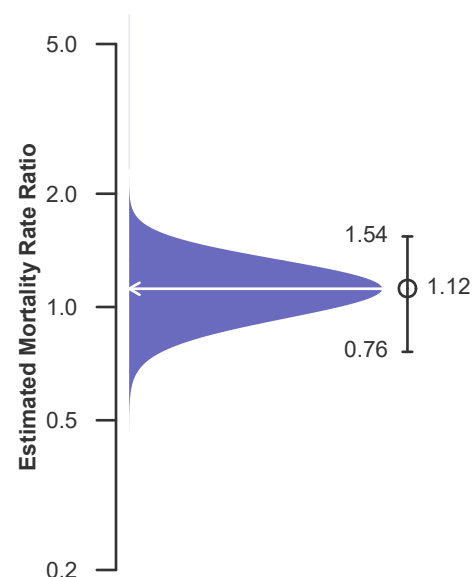


Figure B5. Pre-transplant mortality rate ratio estimate





B. Waiting List Information

Table B6. Rates of patient mortality after listing: 01/01/2019 - 03/12/2020

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Patients				
Count at risk during the evaluation period	456	556	1,984	23,453
Person-years*	428.0	524.5	1,864.2	21,933.8
Number of Deaths	19	29	101	1,257
Adult (18+) Patients				
Count at risk during the evaluation period	417	517	1,720	20,054
Person-years*	391.3	487.8	1,618.4	18,746.1
Number of Deaths	18	28	89	1,100
Pediatric (<18) Patients				
Count at risk during the evaluation period	39	39	264	3,399
Person-years*	36.7	36.7	245.8	3,187.6
Number of Deaths	1	1	12	157

* Person-years are calculated as days (converted to fractional years). The number of days from 01/01/2019, or from the date of first wait listing until death, reaching 5 years after listing or March 12, 2020.

** Patient mortality after listing describes the relative survival experience of patients after listing. It depends on many factors, some of which are outside of the control of the transplant program. For example, availability of organs may not be the same in every part of the country.

Figure B7. Observed and expected rates of patient mortality after listing: 01/01/2019 - 03/12/2020

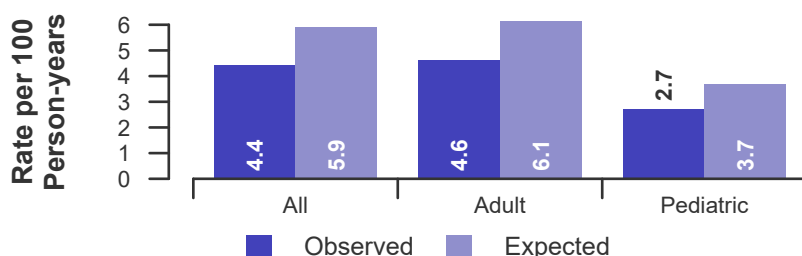


Figure B8. HR estimate of patient mortality after listing

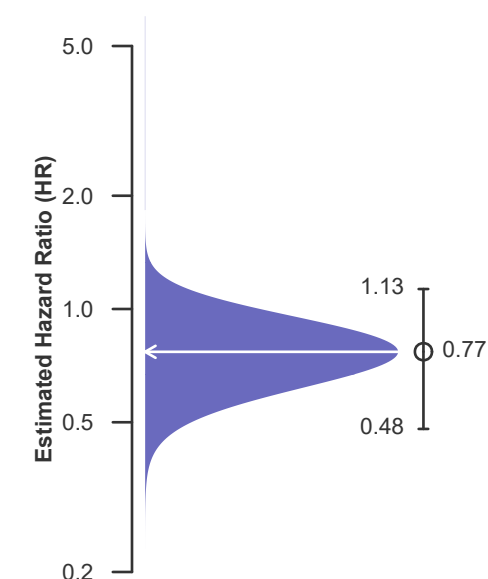
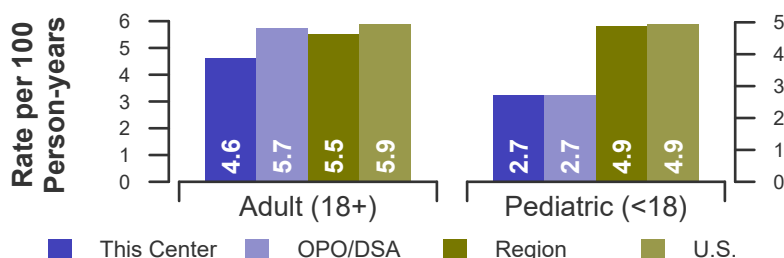


Figure B9. Observed adult (18+) and pediatric (<18) rates of patient mortality after listing: 01/01/2019 - 03/12/2020





B. Waiting List Information

Table B7. Waiting list candidate status after listing**Candidates registered on waiting list between 07/01/2018 and 06/30/2019**

Waiting list status (survival status)	This Center (N=100)			U.S. (N=4,673)		
	Months Since Listing			Months Since Listing		
	6	12	18	6	12	18
Alive on waiting list (%)	54.0	45.0	40.0	37.2	25.1	18.7
Died on the waiting list without transplant (%)	4.0	6.0	7.0	3.2	3.8	4.1
Removed without transplant (%):						
Condition worsened (status unknown)	2.0	2.0	2.0	3.2	4.0	4.6
Condition improved (status unknown)	1.0	1.0	1.0	0.8	1.7	2.4
Refused transplant (status unknown)	0.0	0.0	0.0	0.3	0.4	0.4
Other	0.0	2.0	2.0	1.7	2.7	3.4
Transplant (living or deceased donor) (%):						
Functioning (alive)	38.0	42.0	32.0	49.3	51.7	37.3
Failed-Retransplanted (alive)	0.0	0.0	0.0	0.1	0.2	0.2
Failed-alive not retransplanted	0.0	0.0	0.0	0.0	0.0	0.0
Died	0.0	1.0	1.0	3.3	5.0	6.0
Status Yet Unknown*	0.0	0.0	14.0	0.4	4.3	21.6
Lost or Transferred (status unknown) (%)	1.0	1.0	1.0	0.5	0.9	1.2
TOTAL (%)	100.0	100.0	100.0	100.0	100.0	100.0
Total % known died on waiting list or after transplant	4.0	7.0	8.0	6.5	8.8	10.1
Total % known died or removed as unstable	6.0	9.0	10.0	9.7	12.8	14.7
Total % removed for transplant	38.0	43.0	47.0	53.2	61.2	65.1
Total % with known functioning transplant (alive)	38.0	42.0	32.0	49.3	51.7	37.3

* Follow-up form covering specified time period not yet completed, and possibly has not become due.



B. Waiting List Information

Table B8. Percent of candidates with deceased donor transplants: demographic characteristics
Candidates registered on the waiting list between 01/01/2015 and 12/31/2017

Characteristic	N	Percent transplanted at time periods since listing					United States				
		This Center					United States				
		30 day	1 year	2 years	3 years		30 day	1 year	2 years	3 years	
All	257	16.0	41.6	52.9	57.2	13,580	16.3	55.2	63.2	65.8	
Ethnicity/Race*											
White	206	16.0	43.2	53.9	58.7	8,322	16.4	55.3	63.3	66.1	
African-American	43	16.3	37.2	51.2	53.5	3,146	14.4	51.7	60.3	62.9	
Hispanic/Latino	3	0.0	33.3	33.3	33.3	1,418	16.6	58.9	65.9	68.3	
Asian	2	50.0	50.0	50.0	50.0	544	25.0	63.1	70.2	72.2	
Other	3	0.0	0.0	33.3	33.3	150	16.7	59.3	63.3	64.7	
Unknown	0	--	--	--	--	0	--	--	--	--	
Age											
<2 years	13	15.4	76.9	76.9	76.9	837	18.6	60.2	61.2	61.4	
2-11 years	5	20.0	60.0	60.0	60.0	597	13.9	62.0	69.5	72.0	
12-17 years	9	44.4	88.9	88.9	88.9	530	24.9	73.2	80.4	81.3	
18-34 years	23	4.3	17.4	39.1	39.1	1,274	16.1	52.5	59.8	63.2	
35-49 years	48	14.6	31.2	41.7	47.9	2,546	13.1	49.6	59.3	62.4	
50-64 years	118	16.1	45.8	57.6	62.7	5,703	15.6	54.0	62.9	66.0	
65-69 years	34	20.6	29.4	41.2	47.1	1,775	17.7	56.7	64.8	66.7	
70+ years	7	0.0	42.9	57.1	57.1	318	29.9	66.4	67.9	68.6	
Gender											
Male	180	15.0	36.1	47.8	52.8	9,655	15.1	53.9	62.7	65.5	
Female	77	18.2	54.5	64.9	67.5	3,925	19.1	58.2	64.2	66.5	

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



B. Waiting List Information

Table B9. Percent of candidates with deceased donor transplants: medical characteristics
Candidates registered on the waiting list between 01/01/2015 and 12/31/2017

Characteristic	Percent transplanted at time periods since listing									
	This Center					United States				
	N	30 day	1 year	2 years	3 years	N	30 day	1 year	2 years	3 years
All	257	16.0	41.6	52.9	57.2	13,580	16.3	55.2	63.2	65.8
Blood Type										
O	92	8.7	33.7	44.6	48.9	6,045	10.0	45.8	55.0	58.3
A	114	17.5	42.1	53.5	59.6	5,002	20.3	61.9	68.9	71.1
B	33	24.2	48.5	63.6	63.6	1,905	19.2	60.7	68.7	71.0
AB	18	27.8	66.7	72.2	72.2	627	36.0	75.3	79.6	80.2
Previous Transplant										
Yes	9	11.1	33.3	44.4	44.4	590	11.0	42.9	48.0	50.8
No	248	16.1	41.9	53.2	57.7	12,990	16.5	55.7	63.8	66.5
Primary Disease										
Cardiomyopathy	173	18.5	43.4	57.2	60.7	7,729	17.5	57.6	66.2	68.6
Coronary Artery Disease	48	10.4	39.6	45.8	56.2	3,638	15.3	52.3	60.4	63.7
Retransplant/Graft Failure	7	14.3	14.3	28.6	28.6	494	10.3	42.9	48.0	51.2
Valvular Heart Disease	2	0.0	50.0	50.0	50.0	136	16.9	59.6	64.0	66.9
Congenital Heart Disease	23	13.0	43.5	43.5	43.5	1,381	14.3	54.4	60.3	62.1
Other	4	0.0	25.0	50.0	50.0	202	16.8	46.0	53.5	55.0
Missing	0	--	--	--	--	0	--	--	--	--
Medical Urgency Status at Listing										
Status 1A	80	42.5	72.5	75.0	75.0	4,286	31.0	69.6	72.6	73.5
Status 1B	83	6.0	37.3	54.2	61.4	5,469	13.2	56.5	66.1	69.0
Status 2	93	2.2	19.4	33.3	38.7	3,373	4.0	36.8	48.6	52.7
Unknown	1	0.0	0.0	0.0	0.0	452	6.2	39.2	46.7	50.9



B. Waiting List Information

Table B10. Time to transplant for waiting list candidates*

Candidates registered on the waiting list between 01/01/2015 and 06/30/2020

Percentile	Center	Months to Transplant**		U.S.
		OPO/DSA	Region	
5th	0.2	0.2	0.2	0.2
10th	0.4	0.4	0.4	0.4
25th	2.0	2.2	1.5	1.2
50th (median time to transplant)	15.9	14.3	9.5	6.2
75th	Not Observed	Not Observed	Not Observed	Not Observed

* If cells contain "Not Observed" fewer than that percentile of patients had received a transplant. For example, the 50th percentile of time to transplant is the time when 50% of candidates have received transplants. If waiting times are long, then the 50th percentile may not be observed during the follow-up period for this table. Also, if more than 50% of candidates are removed from the list due to death or other reasons before receiving transplants, then the 50th percentile of time to transplant will not be observed.

** Censored on 12/31/2020. Calculated as the months after listing, during which the corresponding percent of all patients initially listed had received a transplant.



B. Waiting List Information

Table B11. Offer Acceptance Practices: 01/01/2020 - 12/31/2020

Offers Acceptance Characteristics	This Center	OPO/DSA	Region	U.S.
Overall				
Number of Offers	2,078	2,191	7,701	55,469
Number of Acceptances	62	84	294	3,294
Expected Acceptances	100.7	108.5	384.7	3,289.0
Offer Acceptance Ratio*	0.62	0.78	0.77	1.00
95% Credible Interval**	[0.48, 0.79]	--	--	--
PHS increased infectious risk				
Number of Offers	827	884	3,039	18,453
Number of Acceptances	22	35	102	1,044
Expected Acceptances	38.1	42.6	148.3	1,041.4
Offer Acceptance Ratio*	0.60	0.83	0.69	1.00
95% Credible Interval**	[0.38, 0.86]	--	--	--
Ejection fraction < 60				
Number of Offers	706	749	2,595	18,634
Number of Acceptances	21	32	105	958
Expected Acceptances	31.1	33.8	109.7	957.6
Offer Acceptance Ratio*	0.69	0.95	0.96	1.00
95% Credible Interval**	[0.44, 1.00]	--	--	--
Donor Age >= 40				
Number of Offers	882	923	3,253	22,419
Number of Acceptances	20	21	60	666
Expected Acceptances	27.6	28.6	90.8	674.5
Offer Acceptance Ratio*	0.74	0.75	0.67	0.99
95% Credible Interval**	[0.47, 1.09]	--	--	--
Hard-to-Place Hearts (Over 50 Offers)				
Number of Offers	835	865	2,903	17,586
Number of Acceptances	6	9	31	267
Expected Acceptances	14.5	15.2	42.4	264.3
Offer Acceptance Ratio*	0.48	0.64	0.74	1.01
95% Credible Interval**	[0.21, 0.87]	--	--	--
Donor more than 500 miles away				
Number of Offers	367	389	1,861	15,138
Number of Acceptances	16	17	59	699
Expected Acceptances	15.3	16.3	75.9	686.4
Offer Acceptance Ratio*	1.04	1.04	0.78	1.02
95% Credible Interval**	[0.62, 1.57]	--	--	--

* The offer acceptance ratio estimates the relative offer acceptance practice of The Cleveland Clinic Foundation (OHCC) compared to the national offer acceptance practice. A ratio above one indicates the program is more likely to accept an offer compared to national offer acceptance practices (e.g., an offer acceptance ratio of 1.25 indicates a 25% more likely to accept an offer), while a ratio below one indicates the program is less likely to accept an offer compared to national offer acceptance practices (e.g., an offer acceptance ratio of 0.75 indicates a 25% less likely to accept an offer).

** As an example, the 95% Credible Interval for the overall offer acceptance ratio, [0.48, 0.79], indicates the location of OHCC's true offer acceptance ratio with 95% probability. The best estimate is 38% less likely to accept an offer compared to national acceptance behavior, but OHCC's performance could plausibly range from 52% reduced acceptance up to 21% reduced acceptance.



B. Waiting List Information

Figure B10. Offer acceptance: Overall

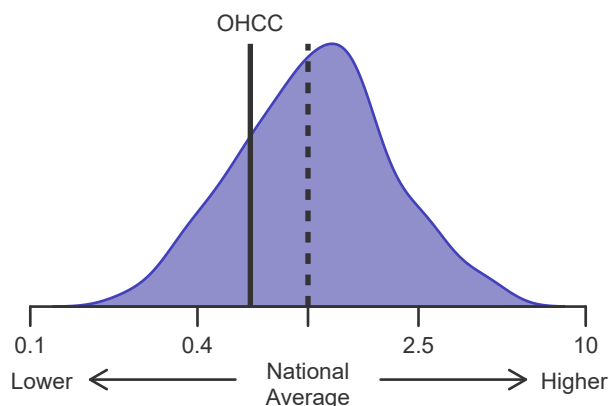


Figure B11. Offer acceptance:
PHS increased infectious risk

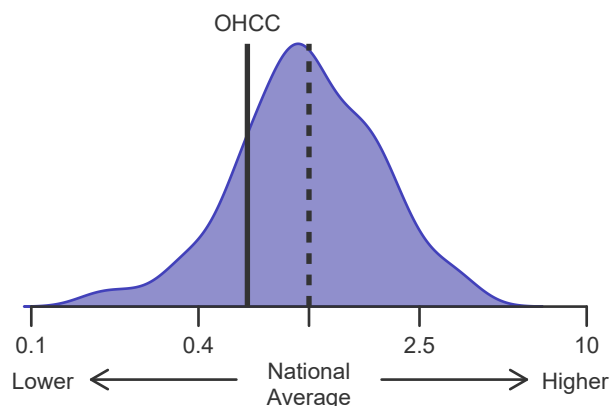


Figure B12. Offer acceptance:
Ejection fraction < 60

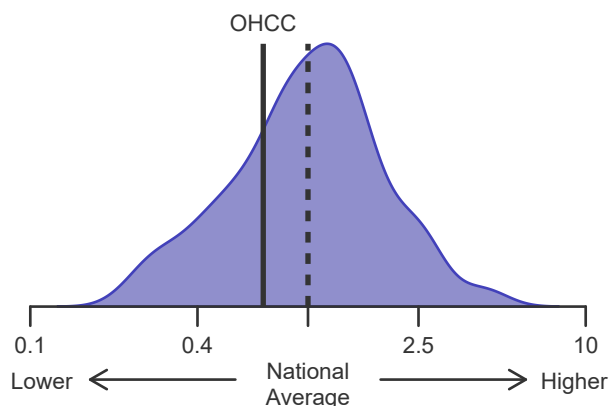


Figure B13. Offer acceptance: Donor age >= 40

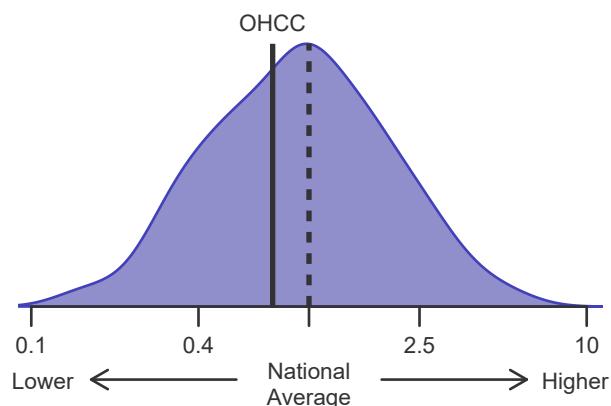


Figure B14. Offer acceptance:
Offer number > 50

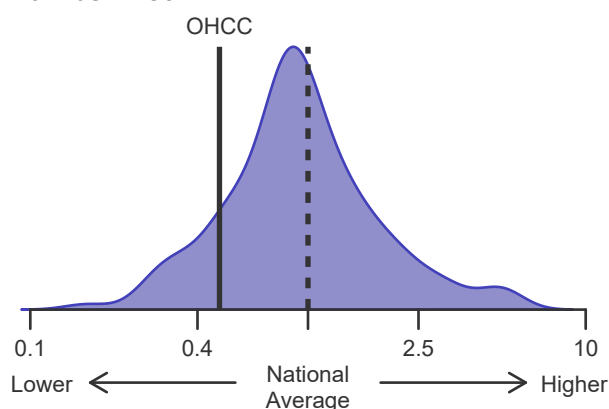
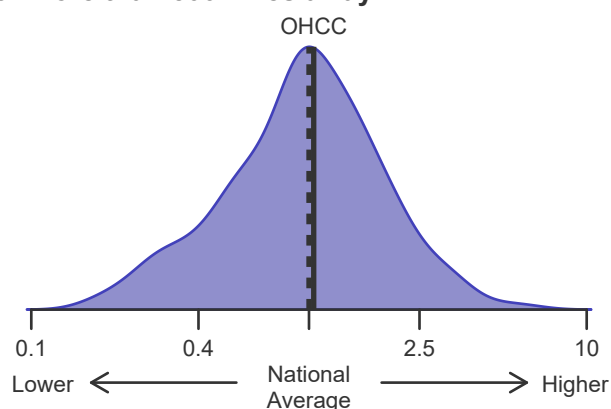


Figure B15. Offer acceptance:
Donor more than 500 miles away





C. Transplant Information

Table C1D. Deceased donor transplant recipient demographic characteristics**Patients transplanted between 01/01/2020 and 12/31/2020**

Characteristic	Percentage in each category		
	Center (N=67)	Region (N=324)	U.S. (N=3,657)
Ethnicity/Race (%)*			
White	73.1	73.8	59.4
African-American	22.4	21.6	25.0
Hispanic/Latino	3.0	1.9	10.6
Asian	1.5	1.9	3.8
Other	0.0	0.9	1.1
Unknown	0.0	0.0	0.0
Age (%)			
<2 years	3.0	5.2	4.2
2-11 years	3.0	4.9	4.3
12-17	1.5	5.9	4.2
18-34	14.9	10.8	8.9
35-49 years	9.0	18.2	18.6
50-64 years	56.7	38.3	41.8
65-69 years	6.0	13.0	14.5
70+ years	6.0	3.7	3.5
Gender (%)			
Male	74.6	70.4	71.6
Female	25.4	29.6	28.4

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



C. Transplant Information

Table C2D. Deceased donor transplant recipient medical characteristics
Patients transplanted between 01/01/2020 and 12/31/2020

Characteristic	Percentage in each category		
	Center (N=67)	Region (N=324)	U.S. (N=3,657)
Blood Type (%)			
O	31.3	37.7	40.3
A	43.3	43.8	39.2
B	19.4	12.3	15.1
AB	6.0	6.2	5.4
Previous Transplant (%)			
Yes	3.0	2.8	3.6
No	97.0	97.2	96.4
Body Mass Index (%)			
0-20	17.9	17.3	16.7
21-25	31.3	23.1	27.1
26-30	25.4	29.6	30.5
31-35	22.4	25.0	19.4
36-40	3.0	4.6	4.6
41+	0.0	0.3	0.6
Unknown	0.0	0.0	1.1
Primary Disease (%)			
Cardiomyopathy	70.1	61.1	63.2
Coronary Artery Disease	20.9	24.4	24.6
Retransplant/Graft Failure	0.0	0.0	0.0
Valvular Heart Disease	0.0	0.0	1.0
Congenital Heart Disease	9.0	13.9	9.8
Other	0.0	0.6	1.3
Missing	0.0	0.0	0.1
Medical Urgency Status at Transplant (%)			
Status 1A	7.5	11.4	9.8
Status 1B	0.0	4.0	2.4
Status 2	0.0	0.6	0.7
Adult Status 1	13.4	8.0	6.9
Adult Status 2	43.3	34.9	38.9
Adult Status 3	13.4	20.1	15.9
Adult Status 4	20.9	17.6	19.9
Adult Status 5	0.0	0.6	0.9
Adult Status 6	1.5	2.8	4.6
Recipient Medical Condition at Transplant (%)			
Not Hospitalized	31.3	40.7	34.8
Hospitalized	10.4	12.7	13.7
ICU	58.2	46.6	50.9
Unknown	0.0	0.0	0.6
Recipient Circulatory Support Status at Transplant (%)			
No Support Mechanism	11.9	19.1	21.2
Devices*	85.1	70.1	61.3
Other Support Mechanism	3.0	10.8	17.0
Unknown	0.0	0.0	0.5

* Devices include ventricular assist devices (VAD), extracorporeal membrane oxygenation (ECMO), intraaortic balloon pump (IABP), and total artificial heart (TAH).



C. Transplant Information

Table C3D. Deceased donor characteristics**Transplants performed between 01/01/2020 and 12/31/2020**

Donor Characteristic	Percentage in each category		
	Center (N=67)	Region (N=324)	U.S. (N=3,657)
Cause of Death (%)			
Deceased: Stroke	13.4	11.1	12.2
Deceased: MVA	17.9	15.7	18.3
Deceased: Other	68.7	73.1	69.5
Ethnicity/Race (%)*			
White	67.2	70.1	59.9
African-American	20.9	19.4	18.1
Hispanic/Latino	7.5	9.0	18.8
Asian	3.0	0.9	1.9
Other	1.5	0.6	1.3
Not Reported	0.0	0.0	0.0
Age (%)			
<2 years	1.5	4.0	3.3
2-11 years	4.5	5.9	4.0
12-17	3.0	5.6	6.5
18-34	47.8	48.8	52.4
35-49 years	31.3	29.0	28.1
50-64 years	11.9	6.8	5.7
65-69 years	0.0	0.0	0.0
70+ years	0.0	0.0	0.0
Gender (%)			
Male	59.7	64.2	71.0
Female	40.3	35.8	29.0
Blood Type (%)			
O	43.3	45.4	52.6
A	40.3	42.0	34.6
B	13.4	9.9	10.9
AB	3.0	2.8	1.9
Unknown	0.0	0.0	0.0

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



C. Transplant Information

Table C4D. Deceased donor transplant characteristics
Transplants performed between 01/01/2020 and 12/31/2020

Transplant Characteristic	Percentage in each category		
	Center (N=67)	Region (N=324)	U.S. (N=3,657)
Total Ischemic Time (Minutes): Local (%)			
Deceased: 0-90 min	0.0	6.5	10.7
Deceased: 91-180 min	100.0	69.6	62.0
Deceased: 181-270 min	0.0	19.6	23.4
Deceased: 271-360 min	0.0	2.2	2.2
Deceased: 361+ min	0.0	0.0	0.4
Not Reported	0.0	2.2	1.3
Total Ischemic Time (Minutes): Shared (%)			
Deceased: 0-90 min	0.0	0.4	0.4
Deceased: 91-180 min	12.7	19.1	18.4
Deceased: 181-270 min	84.1	74.8	65.7
Deceased: 271-360 min	3.2	5.4	12.0
Deceased: 361+ min	0.0	0.4	2.7
Not Reported	0.0	0.0	0.7
Procedure Type (%)			
Single organ	94.0	91.7	90.8
Multi organ	6.0	8.3	9.2
Donor Location (%)			
Local Donation Service Area (DSA)	6.0	14.2	22.8
Another Donation Service Area (DSA)	94.0	85.8	77.2
Median Time in Hospital After Transplant*	16.0 Days	19.0 Days	17.0 Days

* Multi organ transplants are excluded from this statistic.



C. Transplant Information

Table C5D. Adult (18+) 1-month survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2018 and 03/12/2020

Deaths and retransplants are considered graft failures

	OHCC	U.S.
Number of transplants evaluated	95	6,025
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	97.87%	96.69%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	96.82%	--
Number of observed graft failures (including deaths) during the first month after transplant	2	196
Number of expected graft failures (including deaths) during the first month after transplant	3.01	--
Estimated hazard ratio*	0.80	--
95% credible interval for the hazard ratio**	[0.22, 1.75]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.22, 1.75], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 20% lower risk of graft failure compared to an average program, but OHCC's performance could plausibly range from 78% reduced risk up to 75% increased risk.

Figure C1D. Adult (18+) 1-month deceased donor graft failure HR estimate

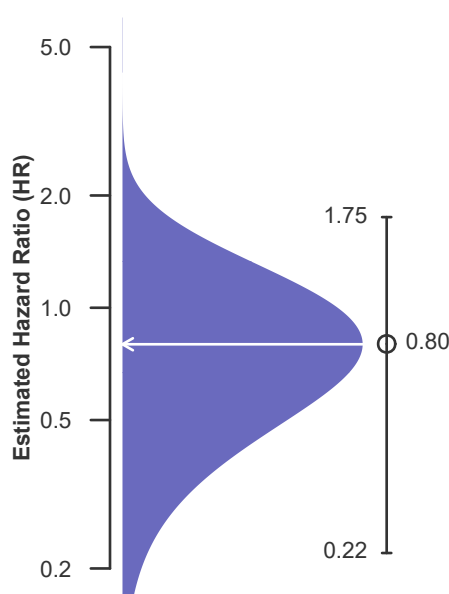
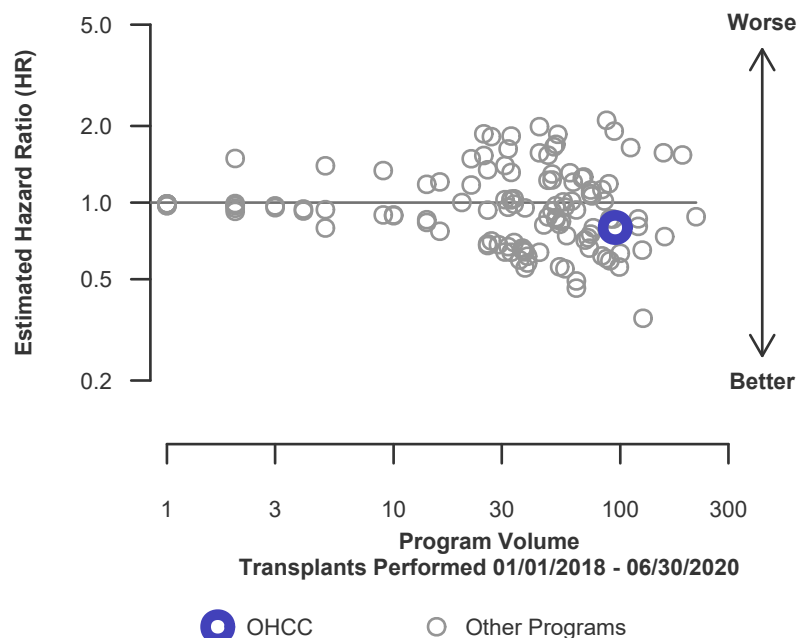


Figure C2D. Adult (18+) 1-month deceased donor graft failure HR program comparison





C. Transplant Information

Table C6D. Adult (18+) 1-year survival with a functioning deceased donor graft
Single organ transplants performed between 01/01/2018 and 03/12/2020
Deaths and retransplants are considered graft failures

	OHCC	U.S.
Number of transplants evaluated	95	6,025
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	96.76%	91.48%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	91.66%	--
Number of observed graft failures (including deaths) during the first year after transplant	3	454
Number of expected graft failures (including deaths) during the first year after transplant	7.11	--
Estimated hazard ratio*	0.55	--
95% credible interval for the hazard ratio**	[0.18, 1.12]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.18, 1.12], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 45% lower risk of graft failure compared to an average program, but OHCC's performance could plausibly range from 82% reduced risk up to 12% increased risk.

Figure C3D. Adult (18+) 1-year deceased donor graft failure HR estimate

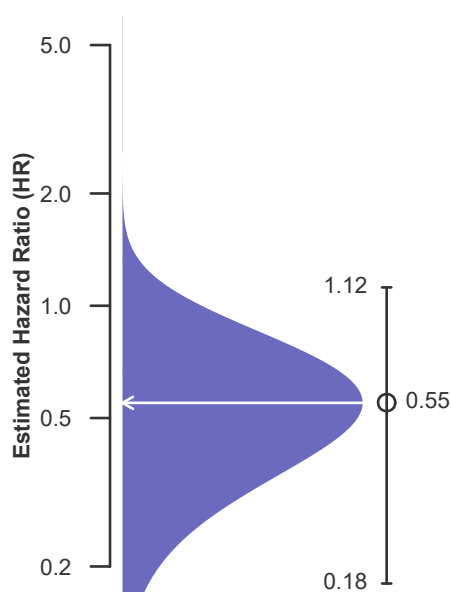
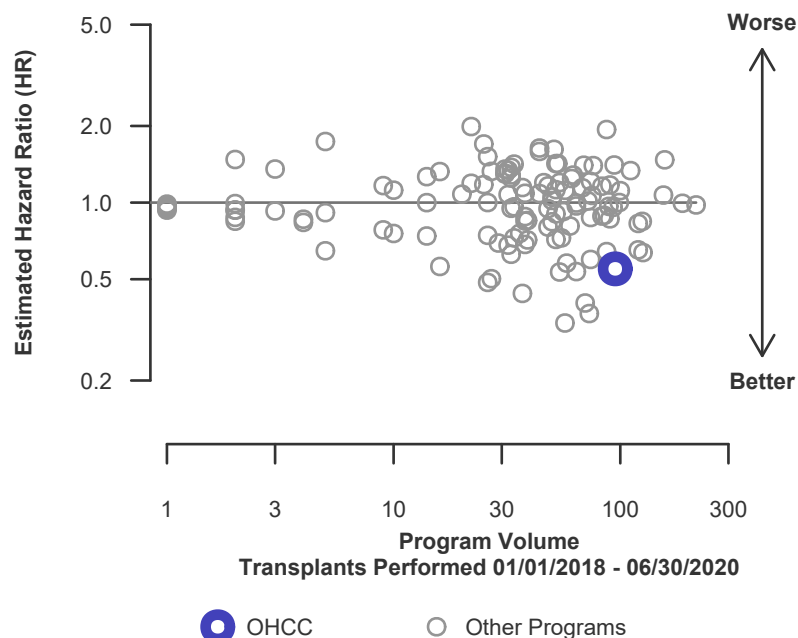


Figure C4D. Adult (18+) 1-year deceased donor graft failure HR program comparison





C. Transplant Information

Table C7D. Adult (18+) 3-year survival with a functioning deceased donor graft

Single organ transplants performed between 07/01/2015 and 12/31/2017

Deaths and retransplants are considered graft failures

	OHCC	U.S.
Number of transplants evaluated	110	6,269
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	88.03%	85.63%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	84.68%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	13	878
Number of expected graft failures (including deaths) during the first 3 years after transplant	15.86	--
Estimated hazard ratio*	0.84	--
95% credible interval for the hazard ratio**	[0.47, 1.32]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.47, 1.32], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 16% lower risk of graft failure compared to an average program, but OHCC's performance could plausibly range from 53% reduced risk up to 32% increased risk.

Figure C5D. Adult (18+) 3-year deceased donor graft failure HR estimate

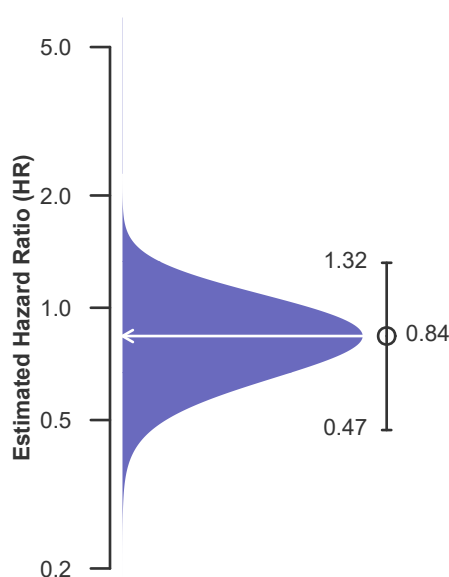
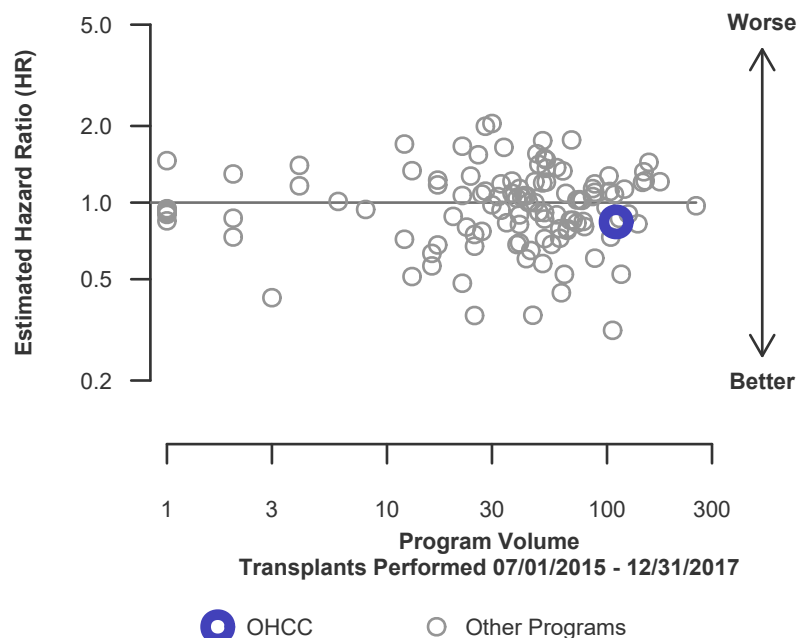


Figure C6D. Adult (18+) 3-year deceased donor graft failure HR program comparison





C. Transplant Information

Table C8D. Pediatric (<18) 1-month survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2018 and 03/12/2020

Deaths and retransplants are considered graft failures

	OHCC	U.S.
Number of transplants evaluated	9	1,075
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	100.00%	97.64%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	98.01%	--
Number of observed graft failures (including deaths) during the first month after transplant	0	25
Number of expected graft failures (including deaths) during the first month after transplant	0.18	--
Estimated hazard ratio*	0.92	--
95% credible interval for the hazard ratio**	[0.11, 2.55]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.11, 2.55], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 8% lower risk of graft failure compared to an average program, but OHCC's performance could plausibly range from 89% reduced risk up to 155% increased risk.

Figure C7D. Pediatric (<18) 1-month deceased donor graft failure HR estimate

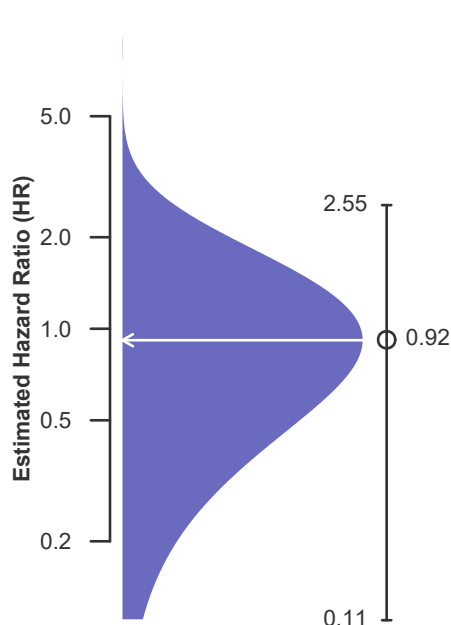
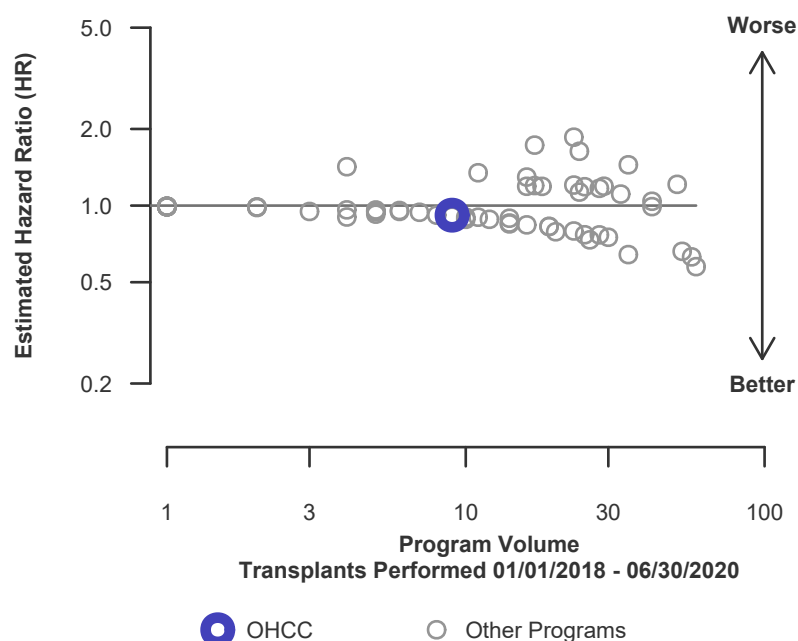


Figure C8D. Pediatric (<18) 1-month deceased donor graft failure HR program comparison





C. Transplant Information

Table C9D. Pediatric (<18) 1-year survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2018 and 03/12/2020

Deaths and retransplants are considered graft failures

	OHCC	U.S.
Number of transplants evaluated	9	1,075
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	87.50%	92.06%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	93.16%	--
Number of observed graft failures (including deaths) during the first year after transplant	1	74
Number of expected graft failures (including deaths) during the first year after transplant	0.56	--
Estimated hazard ratio*	1.17	--
95% credible interval for the hazard ratio**	[0.24, 2.82]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.24, 2.82], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 17% higher risk of graft failure compared to an average program, but OHCC's performance could plausibly range from 76% reduced risk up to 182% increased risk.

Figure C9D. Pediatric (<18) 1-year deceased donor graft failure HR estimate

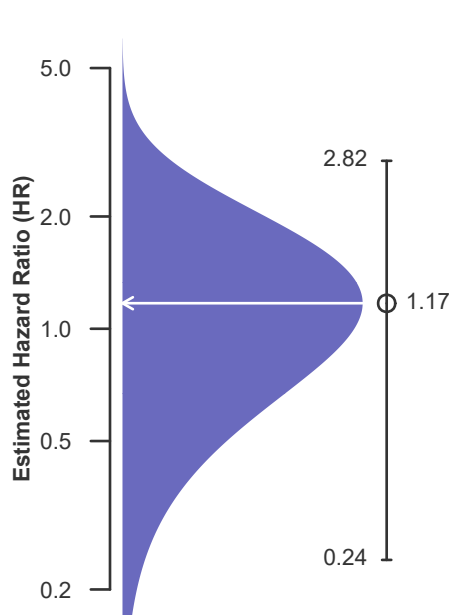
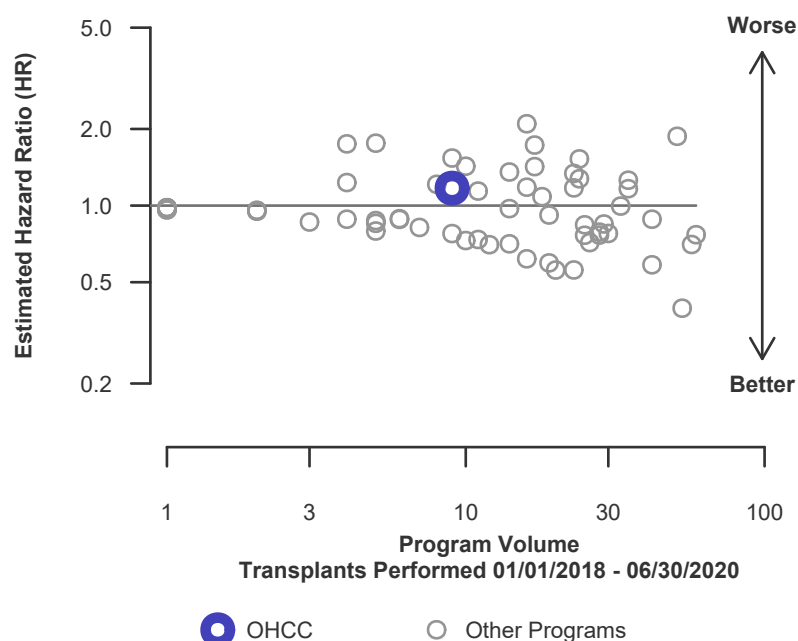


Figure C10D. Pediatric (<18) 1-year deceased donor graft failure HR program comparison





C. Transplant Information

Table C10D. Pediatric (<18) 3-year survival with a functioning deceased donor graft
Single organ transplants performed between 07/01/2015 and 12/31/2017
Deaths and retransplants are considered graft failures

	OHCC	U.S.
Number of transplants evaluated	17	1,114
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	88.24%	88.49%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	88.50%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	2	124
Number of expected graft failures (including deaths) during the first 3 years after transplant	1.87	--
Estimated hazard ratio*	1.03	--
95% credible interval for the hazard ratio**	[0.28, 2.27]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.28, 2.27], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 3% higher risk of graft failure compared to an average program, but OHCC's performance could plausibly range from 72% reduced risk up to 127% increased risk.

Figure C11D. Pediatric (<18) 3-year deceased donor graft failure HR estimate

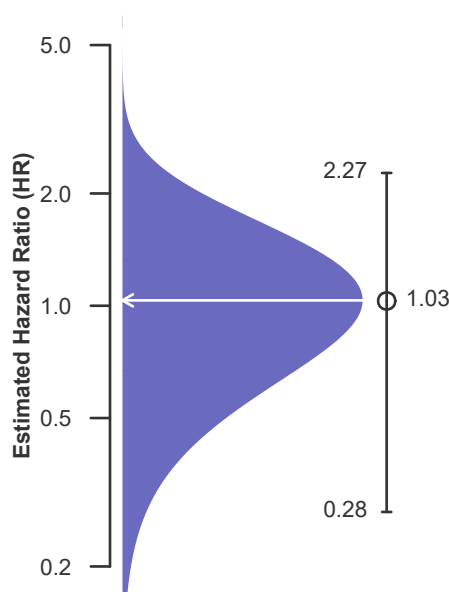
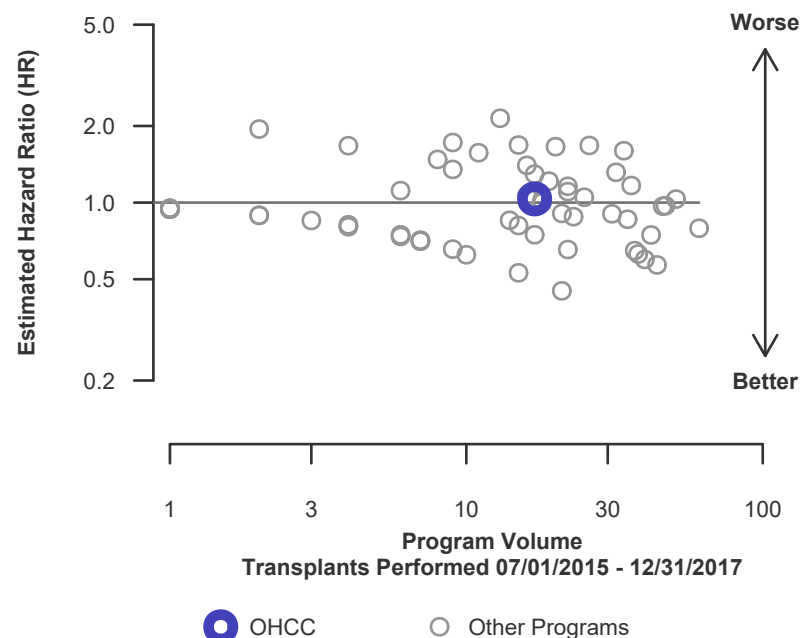


Figure C12D. Pediatric (<18) 3-year deceased donor graft failure HR program comparison





C. Transplant Information

Table C11D. Adult (18+) 1-month patient survival (deceased donor graft recipients)

Single organ transplants performed between 01/01/2018 and 03/12/2020

Retransplants excluded

	OHCC	U.S.
Number of transplants evaluated	95	5,868
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	97.87%	97.09%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	97.05%	--
Number of observed deaths during the first month after transplant	2	168
Number of expected deaths during the first month after transplant	2.78	--
Estimated hazard ratio*	0.84	--
95% credible interval for the hazard ratio**	[0.23, 1.83]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.23, 1.83], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 16% lower risk of patient death compared to an average program, but OHCC's performance could plausibly range from 77% reduced risk up to 83% increased risk.

Figure C13D. Adult (18+) 1-month patient death HR estimate (deceased donor grafts)

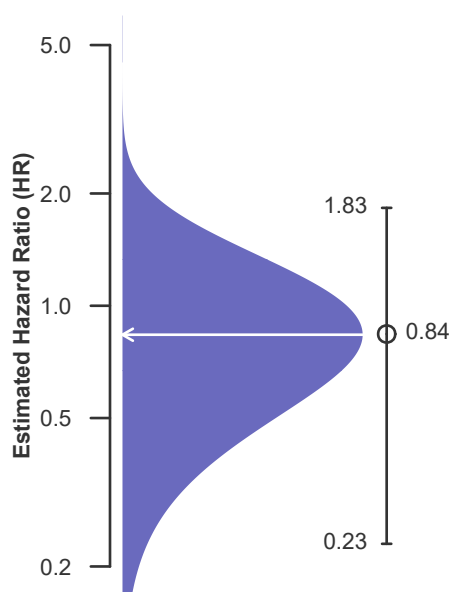
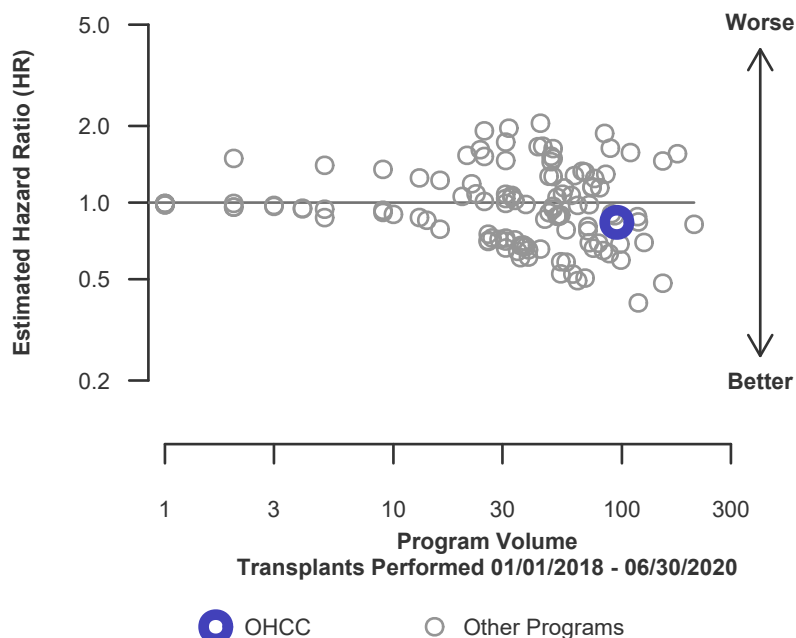


Figure C14D. Adult (18+) 1-month patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C12D. Adult (18+) 1-year patient survival (deceased donor graft recipients)

Single organ transplants performed between 01/01/2018 and 03/12/2020

Retransplants excluded

	OHCC	U.S.
Number of transplants evaluated	95	5,868
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	96.76%	91.88%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	91.73%	--
Number of observed deaths during the first year after transplant	3	419
Number of expected deaths during the first year after transplant	6.97	--
Estimated hazard ratio*	0.56	--
95% credible interval for the hazard ratio**	[0.18, 1.14]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.18, 1.14], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 44% lower risk of patient death compared to an average program, but OHCC's performance could plausibly range from 82% reduced risk up to 14% increased risk.

Figure C15D. Adult (18+) 1-year patient death HR estimate (deceased donor grafts)

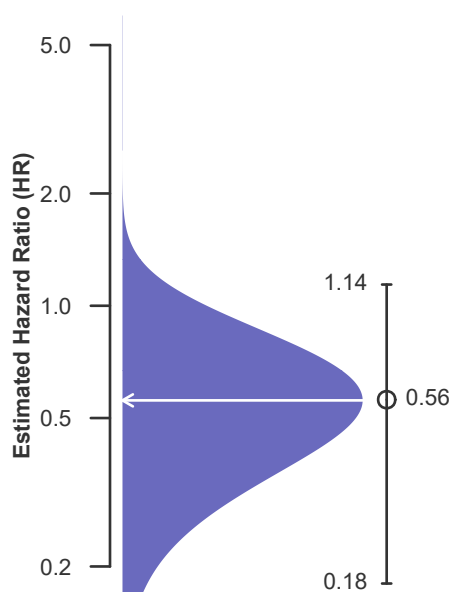
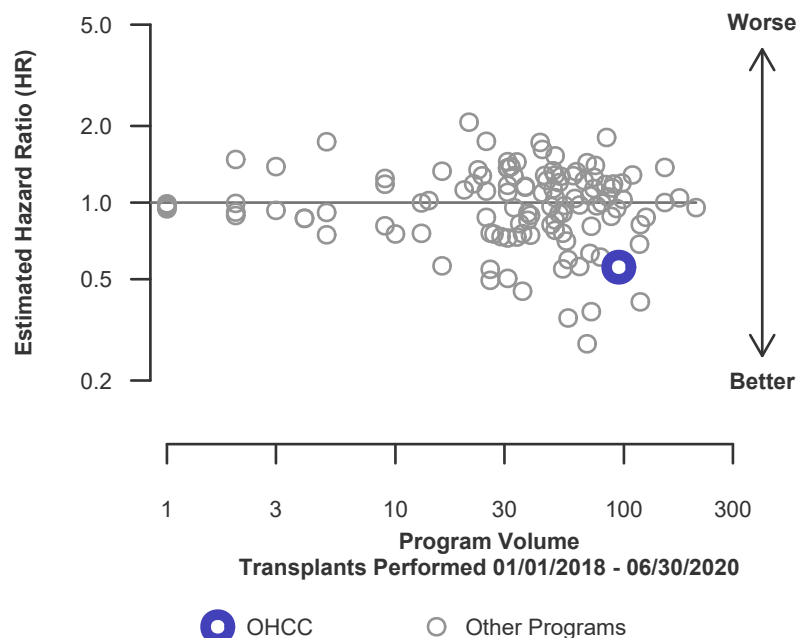


Figure C16D. Adult (18+) 1-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C13D. Adult (18+) 3-year patient survival (deceased donor graft recipients)

Single organ transplants performed between 07/01/2015 and 12/31/2017

Retransplants excluded

	OHCC	U.S.
Number of transplants evaluated	109	6,144
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	87.92%	86.12%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	84.84%	--
Number of observed deaths during the first 3 years after transplant	13	831
Number of expected deaths during the first 3 years after transplant	15.73	--
Estimated hazard ratio*	0.85	--
95% credible interval for the hazard ratio**	[0.47, 1.33]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.47, 1.33], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 15% lower risk of patient death compared to an average program, but OHCC's performance could plausibly range from 53% reduced risk up to 33% increased risk.

Figure C17D. Adult (18+) 3-year patient death HR estimate (deceased donor grafts)

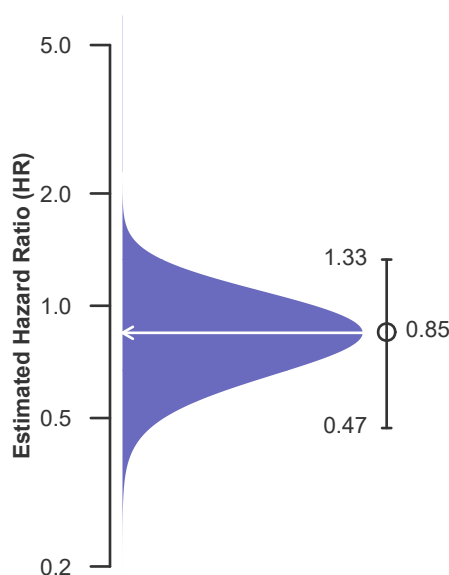
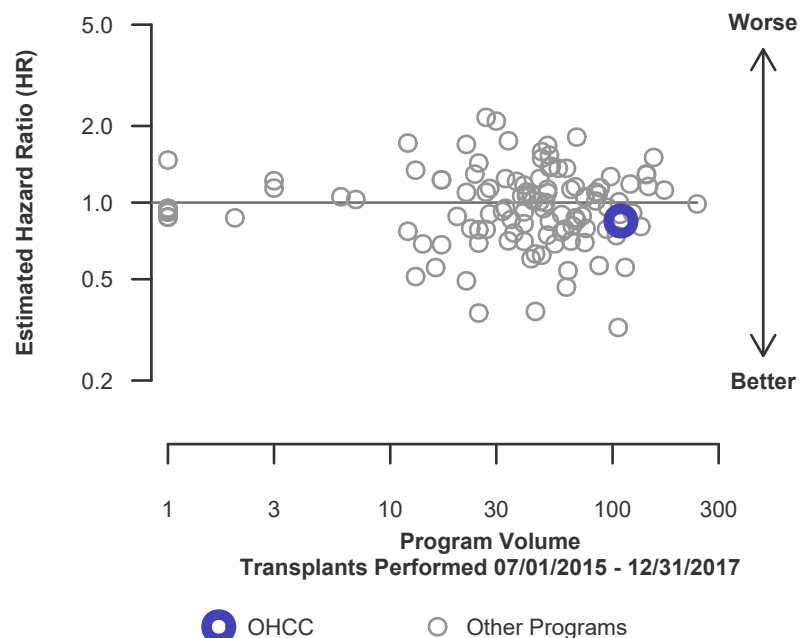


Figure C18D. Adult (18+) 3-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C14D. Pediatric (<18) 1-month patient survival (deceased donor graft recipients)

Single organ transplants performed between 01/01/2018 and 03/12/2020

Retransplants excluded

	OHCC	U.S.
Number of transplants evaluated	9	1,031
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	100.00%	97.63%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	98.07%	--
Number of observed deaths during the first month after transplant	0	24
Number of expected deaths during the first month after transplant	0.18	--
Estimated hazard ratio*	0.92	--
95% credible interval for the hazard ratio**	[0.11, 2.56]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.11, 2.56], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 8% lower risk of patient death compared to an average program, but OHCC's performance could plausibly range from 89% reduced risk up to 156% increased risk.

Figure C19D. Pediatric (<18) 1-month patient death HR estimate (deceased donor grafts)

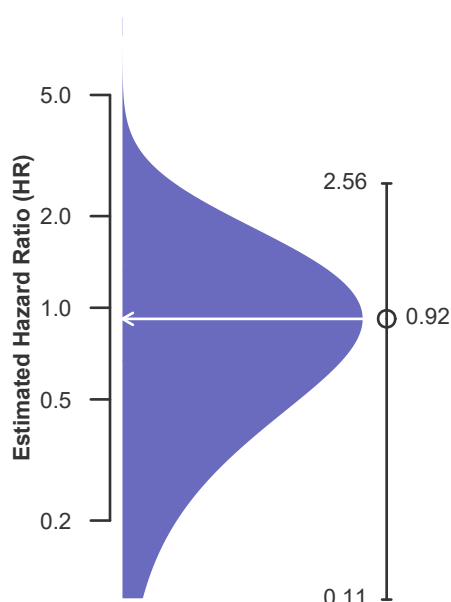
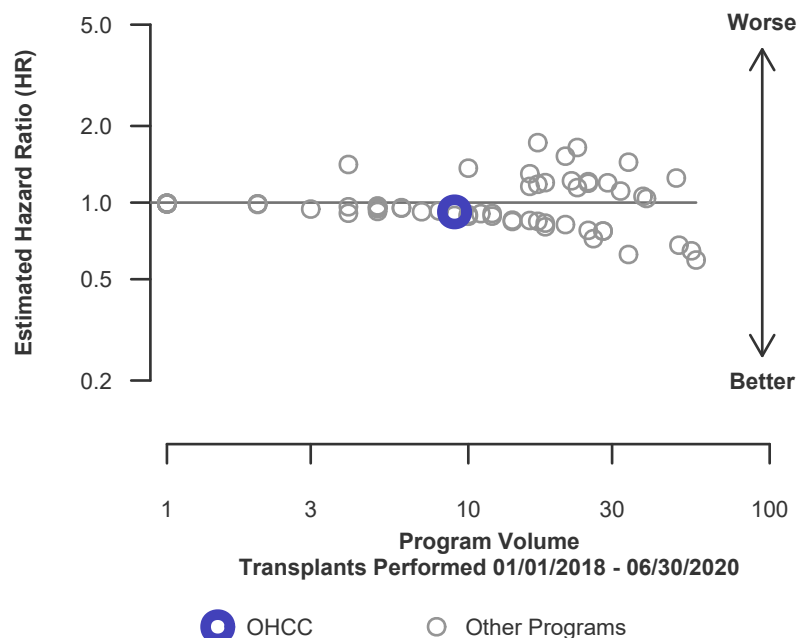


Figure C20D. Pediatric (<18) 1-month patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C15D. Pediatric (<18) 1-year patient survival (deceased donor graft recipients)

Single organ transplants performed between 01/01/2018 and 03/12/2020

Retransplants excluded

	OHCC	U.S.
Number of transplants evaluated	9	1,031
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	87.50%	92.16%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	93.43%	--
Number of observed deaths during the first year after transplant	1	70
Number of expected deaths during the first year after transplant	0.54	--
Estimated hazard ratio*	1.18	--
95% credible interval for the hazard ratio**	[0.24, 2.85]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.24, 2.85], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 18% higher risk of patient death compared to an average program, but OHCC's performance could plausibly range from 76% reduced risk up to 185% increased risk.

Figure C21D. Pediatric (<18) 1-year patient death HR estimate (deceased donor grafts)

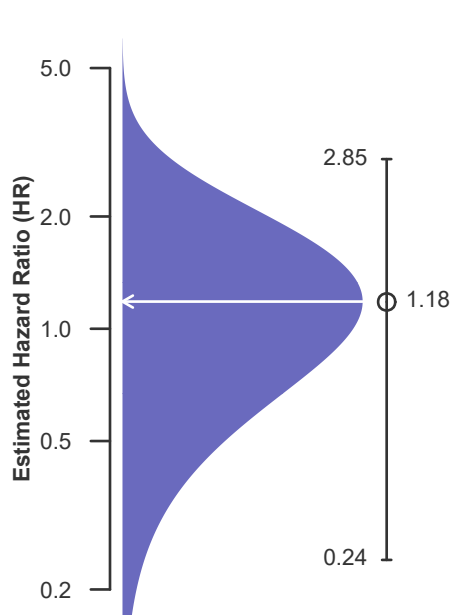
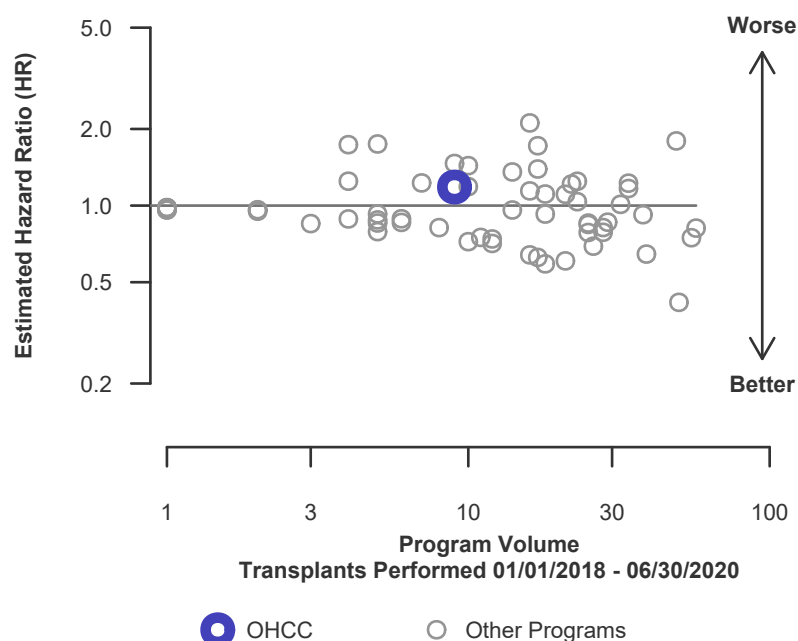


Figure C22D. Pediatric (<18) 1-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C16D. Pediatric (<18) 3-year patient survival (deceased donor graft recipients)

Single organ transplants performed between 07/01/2015 and 12/31/2017

Retransplants excluded

	OHCC	U.S.
Number of transplants evaluated	17	1,066
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	88.24%	88.91%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	88.91%	--
Number of observed deaths during the first 3 years after transplant	2	114
Number of expected deaths during the first 3 years after transplant	1.80	--
Estimated hazard ratio*	1.05	--
95% credible interval for the hazard ratio**	[0.29, 2.31]	--

* The hazard ratio provides an estimate of how The Cleveland Clinic Foundation (OHCC)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If OHCC's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.29, 2.31], indicates the location of OHCC's true hazard ratio with 95% probability. The best estimate is 5% higher risk of patient death compared to an average program, but OHCC's performance could plausibly range from 71% reduced risk up to 131% increased risk.

Figure C23D. Pediatric (<18) 3-year patient death HR estimate (deceased donor grafts)

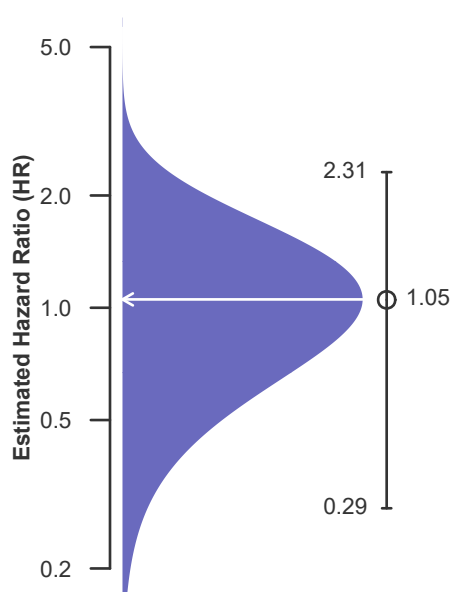
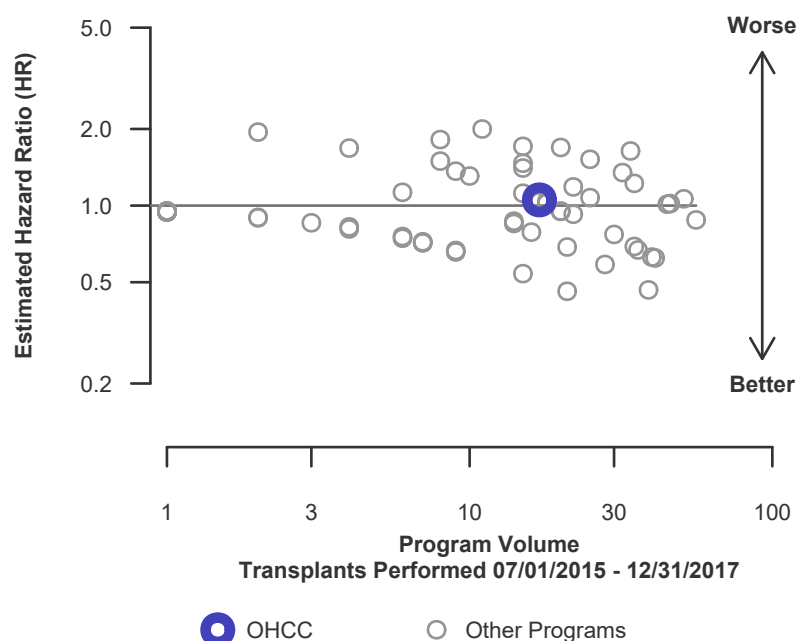


Figure C24D. Pediatric (<18) 3-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C17. Multi-organ transplant graft survival: 01/01/2018 - 06/30/2020

Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Heart Graft Failures		Estimated Heart Graft Survival	
	OHCC-TX1	USA	OHCC-TX1	USA	OHCC-TX1	USA
Heart-Lung	2	94	0	14	100.0%	85.1%
Kidney-Heart	14	550	1	63	92.9%	88.5%
Liver-Heart	1	103	0	15	100.0%	85.4%

Pediatric (<18) Transplants

No pediatric (<18) multi-organ transplants were performed

Table C18. Multi-organ transplant patient survival: 01/01/2018 - 06/30/2020

Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Patient Deaths		Estimated Patient Survival	
	OHCC-TX1	USA	OHCC-TX1	USA	OHCC-TX1	USA
Heart-Lung	2	94	0	14	100.0%	85.1%
Kidney-Heart	14	550	1	62	92.9%	88.7%
Liver-Heart	1	103	0	15	100.0%	85.4%

Pediatric (<18) Transplants

No pediatric (<18) multi-organ transplants were performed